

IN THE CLAIMS

Please cancel claims 30 and 65 without prejudice or disclaimer, and amend claims 1 thru 4, 17 thru 20, 23, 25, 26, 31 thru 33, 35, 36, 39, 41, 42, 44, 52 thru 64, 66 and 67, as follows:

1 1. (Currently Amended) An apparatus, comprising:
2 a management information system for outputting alarm information corresponding
3 to an alarm event and for outputting an alarm clear signal corresponding to an end of said
4 alarm event;
5 an alarm management host for receiving said alarm information, said host having a
6 broadcasting list data table, said host having an alarm database including a first data table
7 and a second data table, said host having a plurality of memory spaces and a plurality of
8 listener tables;
9 a processor [[being]] coupled to said host, said processor storing said alarm
10 information in said first data table when said alarm information is received by said host,
11 said processor removing said alarm information from said first data table and storing said
12 alarm information in said second data table when said alarm event is cleared, said alarm
13 event being cleared when said alarm clear signal is output; and
14 a plurality of alarm managers [[being]] connected to said host, said plurality of
15 alarm managers including a first alarm manager, said listener tables including a first
16 listener table corresponding to said first alarm manager, each of said listener tables
17 having a unique name listed in said broadcasting list data table, said first listener table
18 having a first unique name;
19 said processor storing said alarm information in each of said listener tables listed
20 in said broadcasting list data table;
21 after said storing of said alarm information in said listener tables is completed,
22 said alarm managers reading said alarm information stored in said respective listener
23 tables;

24 when said reading of said alarm information is performed, said alarm managers
25 performing at least one ~~selected from among~~ of displaying said alarm information,
26 printing said alarm information, transmitting an e-mail message including said alarm
27 information, transmitting a pager message including said alarm information, and
28 transmitting a facsimile message including said alarm information;

29 when said reading of said alarm information is performed, said alarm managers
30 removing said alarm information from said listener tables to prevent re-reading of said
31 alarm information;

32 when said management information system performs said outputting of said alarm
33 clear signal, said processor performing said removing of said alarm information from said
34 first data table and performing said storing of said alarm information in said second data
35 table.

1 2. (Currently Amended) The apparatus of claim 1, wherein, when said first
2 alarm manager is being powered off, said first alarm manager requesting requests that
3 said processor remove said first listener table, said processor removing said first listener
4 table in response to said request of said first alarm manager.

1 3. (Currently Amended) The apparatus of claim 1, said processor performing
2 said removing of said alarm information from said first data table and performing said
3 storing of said alarm information in said second data table[[,]] in response to an operator
4 request.

1 4. (Currently Amended) The apparatus of claim 1, said alarm managers
2 monitoring changes [[of]] in said alarm information in said first and second data tables,
3 and displaying results of said monitoring.

1 5. (Original) The apparatus of claim 1, said alarm managers performing said

2 reading periodically.

1 6. (Original) The apparatus of claim 1, said alarm managers performing said
2 reading in response to an operator request.

1 7. (Original) The apparatus of claim 1, said alarm managers performing said
2 reading in response to said alarm information being stored in said listener tables.

1 8. (Original) The apparatus of claim 1, said alarm managers performing said
2 reading in response to said alarm event.

1 9. (Original) The apparatus of claim 1, said listed listener tables being set to a
2 lock mode before said processor performs said storing of said alarm information in said
3 listed listener tables, said lock mode preventing said alarm managers from accessing said
4 listed listener tables during said storing of said alarm information in said listed listener
5 tables.

1 10. (Original) The apparatus of claim 9, said processor performing said
2 setting of said listed listener tables in said lock mode.

1 11. (Original) The apparatus of claim 9, said lock mode being released after
2 said storing of said alarm information in said listed listener tables is completed.

1 12. (Original) The apparatus of claim 9, said alarm managers performing
2 said reading periodically by polling.

1 13. (Original) The apparatus of claim 1, said first listener table being set to a
2 lock mode before said first alarm manager performs said reading of said alarm

3 information stored in said first listener table, said lock mode preventing said processor
4 from accessing said first listener table during said reading of said alarm information in
5 said first listener table.

1 14. (Original) The apparatus of claim 13, said first alarm manager
2 performing said setting of said first listener table in said lock mode.

1 15. (Original) The apparatus of claim 13, said lock mode being released
2 after said reading of said alarm information in said first listener table is completed.

1 16. (Original) The apparatus of claim 1, said processor performing said
2 storing of said alarm information in each of said listed listener tables substantially
3 simultaneously.

1 17. (Currently Amended) The apparatus of claim 1, said alarm information
2 including at least one ~~selected from among~~ of an alarm event position, an alarm event
3 type, an alarm event level, an alarm event cause, additional alarm event information, and
4 an alarm event time.

1 18. (Currently Amended) ~~[[he]]~~ The apparatus of claim 1, said processor
2 assigning an unused alarm identifier to said alarm information when storing said alarm
3 information in said first data table.

1 19. (Currently Amended) The apparatus of claim 1, said processor sensing
2 whether said plurality of alarm managers are operating correctly~~[[,]]~~ after said alarm
3 event is detected and before said processor stores said alarm information in each of said
4 listener tables listed in said broadcasting list data table.

1 20. (Currently Amended) The apparatus of claim [[4]] 19, said first unique name
2 being removed from said broadcasting list data table when said first alarm manager is not
3 operating correctly[[,]] after said processor performs said sensing and before said
4 processor stores said alarm information in each of said listener tables listed in said
5 broadcasting list data table.

1 21. (Original) The apparatus of claim 1, said processor creating said first
2 and second data tables in said alarm database.

1 22. (Original) The apparatus of claim 1, said first data table being smaller
2 than said second data table.

1 23. (Currently Amended) The apparatus of claim 1, said first data table being
2 used for storing said alarm information when said alarm event is not cleared, said second
3 data table being used for storing said alarm information when said alarm event is cleared.

1 24. (Original) The apparatus of claim 1, said plurality of alarm managers
2 securing said memory spaces in said host and creating said listener tables in said secured
3 memory spaces.

1 25. (Currently Amended) The apparatus of claim 1, each respective one of said
2 alarm managers securing [[one]] a respective memory space from among said memory
3 spaces, each respective one of said alarm managers creating one respective listener table
4 in said secured respective memory space.

1 26. (Currently Amended) An apparatus for managing an alarm event occurring in
2 a network, said ~~system~~ apparatus comprising:
3 a management information system for outputting alarm information corresponding

4 to [[an]] the alarm event;

5 an alarm management host computer for managing said alarm information
6 received from said management information system; and

7 a plurality of alarm managers [[being]] connected to said alarm management host
8 computer, said plurality of alarm managers reading said alarm information when said
9 alarm information is not cleared, said plurality of alarm managers including a first alarm
10 manager;

11 said alarm management host computer having a first data table for storing said
12 alarm information when said alarm information is not cleared, and a second data table for
13 storing said alarm information when said alarm information is cleared, said alarm
14 management host computer storing said alarm information in said first data table when
15 said alarm information is not cleared, said alarm management host computer removing
16 said alarm information from said first data table and storing said alarm information in
17 said second data table when said alarm information is cleared, said alarm information
18 being cleared when said alarm event ends;

19 said alarm management host computer including a broadcasting list data table and
20 a plurality of listener data tables including a first listener data table, each one of said
21 listener data tables having a unique name, said broadcasting list data table storing each
22 unique name of each one of said listener data tables, each respective one of said listener
23 data tables corresponding to a respective one of said alarm managers.

1 27. (Original) The apparatus of claim 26, said alarm information being not
2 cleared when said alarm event has not ended, said alarm information being cleared when
3 said alarm event ends.

1 28. (Original) The apparatus of claim 27, said management information
2 system outputting an alarm clear signal corresponding to said end of said alarm event.

1 29. (Original) The apparatus of claim 28, said alarm management host
2 computer clearing said alarm information in response to said alarm clear signal, said
3 alarm management host computer removing said alarm information from said first data
4 table and storing said alarm information in said second data table in response to said
5 alarm clear signal.

Claim 30. (Canceled)

1 31. (Currently Amended) The apparatus of claim [[30]] 26, said name of said
2 first listener data table being removed from said broadcasting list data table when said
3 first alarm manager is detected as not operating normally, said first alarm manager
4 corresponding to said first listener data table.

1 32. (Currently Amended) The apparatus of claim 31, said alarm information
2 being stored in each one of said plurality of listener data tables listed [[on]] in said
3 broadcasting list data table when said alarm information is stored in said first data table,
4 said alarm information stored in each one of said listed listener data tables being read by
5 said corresponding alarm managers.

1 33. (Currently Amended) The apparatus of claim 32, said alarm managers
2 reading said alarm information from said ~~corresponding~~ listener data tables by polling.

1 34. (Original) The apparatus of claim 26, said alarm management host
2 computer transmitting said alarm information to said alarm managers in response to a
3 request from said alarm managers.

1 35. (Currently Amended) An alarm management method for an alarm
2 management processor connected to a plurality of alarm managers, said method

3 comprising the steps of:

4 ~~making~~ creating an uncleared alarm table for storing alarm information
5 corresponding to an alarm event that is generated from a network and that is not cleared,
6 and ~~making~~ creating a cleared alarm table for storing alarm information corresponding to
7 an alarm event that is cleared;

8 ~~making~~ creating a plurality of listener tables corresponding to the alarm managers;
9 registering the listener tables in a broadcasting list table;
10 storing alarm information in the uncleared alarm table when the alarm event is
11 generated from the network;

12 storing the alarm information in the listener tables registered in the broadcasting
13 list table;

14 reading the alarm information from the listener tables, said reading being
15 performed by the alarm managers; and

16 when the alarm event is released, clearing the alarm information from the
17 uncleared alarm table and storing the alarm information in the cleared alarm table.

1 36. (Currently Amended) The method of claim 35, further comprising the
2 [[steps]] step of:

3 displaying the alarm information and then clearing the alarm information from the
4 listener tables, said displaying and clearing being performed by the alarm managers.

1 37. (Original) The method of claim 36, said reading of the alarm
2 information from the listener tables being performed by the alarm managers using
3 polling.

1 38. (Original) The method of claim 37, said storing of alarm information in
2 the listener tables further comprising the steps of:

3 setting the listener tables to a lock mode;

4 storing the alarm information in the listener tables; and
5 releasing the listener tables from the lock mode.

1 39. (Currently Amended) The method of claim 35, further comprising the steps
2 of:

3 ~~checking~~ determining whether the alarm managers corresponding to the listener
4 tables registered in the broadcasting list table are normally operating when the alarm
5 event is generated from the network; and

6 removing, from the broadcasting list table, the listener tables corresponding to any
7 alarm managers that are not normally operating.

1 40. (Original) The method of claim 35, said reading of the alarm
2 information from the listener tables further comprising the steps of:

3 setting the listener tables to a lock mode, said setting being performed by the alarm
4 managers;

5 reading the alarm information from the listener tables, said reading being
6 performed by the alarm managers; and

7 releasing the listener tables from the lock mode, said releasing being performed by
8 the alarm managers.

1 41. (Currently Amended) A method, comprising:

2 outputting alarm information corresponding to an alarm event and outputting an
3 alarm clear signal corresponding to an end of said alarm event, said outputting being
4 performed by a network;

5 receiving said alarm information, said receiving being performed by a host, said
6 host having a broadcasting list data table, a plurality of memory spaces, a plurality of
7 listener tables, and an alarm database including a first data table and a second data table;

8 when said alarm information is received by said host, storing said alarm

9 information in said first data table;

10 when said alarm event is cleared, removing said alarm information from said first
11 data table and storing said alarm information in said second data table, said alarm event
12 being cleared in response to said outputting of said alarm clear signal;

13 connecting a plurality of alarm managers to said host, said plurality of alarm
14 managers including a first alarm manager, said listener tables including a first listener
15 table corresponding to said first alarm manager, each of said listener tables having a
16 unique name listed in said broadcasting list data table, said first listener table having a
17 first unique name;

18 storing said alarm information in each of said listener tables listed in said
19 broadcasting list data table;

20 after said storing of said alarm information in said listener tables is completed,
21 reading said alarm information stored in said listener tables, said reading of said alarm
22 information stored in said listener tables corresponding to each one of said respective
23 alarm managers reading said alarm information stored in each one of said respective
24 listener tables;

25 when said reading of said alarm information is performed by said alarm managers,
26 performing at least one ~~selected from among~~ of displaying said alarm information,
27 printing said alarm information, transmitting an e-mail message including said alarm
28 information, transmitting a pager message including said alarm information, and
29 transmitting a facsimile message including said alarm information;

30 when said reading of said alarm information is performed, removing said alarm
31 information from said listener tables to prevent re-reading of said alarm information; and

32 when said management information system performs said outputting of said alarm
33 clear signal, performing said removing of said alarm information from said first data
34 table and performing said storing of said alarm information in said second data table.

1 42. (Currently Amended) The method of claim 41, further comprising the step

2 of:

3 when said first alarm manager is being powered off, requesting that said first
4 listener table be removed from said broadcasting list data table, and removing said first
5 listener table in response to said requesting.

1 43. (Original) The method of claim 41, said removing of said alarm
2 information from said first data table and said storing of said alarm information in said
3 second data table being performed in response to an operator request.

1 44. (Currently Amended) The method of claim 41, further comprising the step of
2 monitoring changes [[of]] in said alarm information in said first and second data tables,
3 and displaying results of said monitoring.

1 45. (Original) The method of claim 41, said reading of said alarm
2 information being performed by said alarm managers periodically.

1 46. (Original) The method of claim 41, said reading of said alarm
2 information being performed by said alarm managers in response to an operator request.

1 47. (Original) The method of claim 41, said reading of said alarm
2 information being performed by said alarm managers in response to said alarm event.

1 48. (Original) The method of claim 41, said listed listener tables being set to
2 a first lock mode before said storing of said alarm information in said listed listener
3 tables, said first lock mode preventing said alarm managers from accessing said listed
4 listener tables during said storing of said alarm information in said listed listener tables.

1 49. (Original) The method of claim 48, said first lock mode being released

2 after said storing of said alarm information in said listed listener tables is completed.

1 50. (Original) The method of claim 49, said first listener table being set to a
2 second lock mode before said first alarm manager performs said reading of said alarm
3 information stored in said first listener table, said second lock mode allowing only said
4 first alarm manager to access said first listener table during said reading of said alarm
5 information in said first listener table.

1 51. (Original) The method of claim 50, said setting of said first listener table
2 in said second lock mode being performed by said first alarm manager.

1 52. (Currently Amended) The method of claim 51, further comprising the step of
2 releasing said second lock mode after said reading by said first alarm manager of said
3 alarm information in said first listener table is completed.

1 53. (Currently Amended) The method of claim 52, said storing of said alarm
2 information in ~~each of~~ said listed listener tables being performed substantially
3 simultaneously.

1 54. (Currently Amended) The method of claim 53, said alarm information
2 including at least one ~~selected from among~~ of an alarm event position, an alarm event
3 type, an alarm event level, an alarm event cause, additional alarm event information, and
4 an alarm event time.

1 55. (Currently Amended) The method of claim 54, further comprising the step of
2 assigning an unused alarm identifier to said alarm information when storing said alarm
3 information in said first data table.

1 56. (Currently Amended) The method of claim 55, further comprising the step of
2 sensing whether said plurality of alarm managers are operating correctly[[,]] after said
3 alarm event is detected and before said storing of said alarm information in ~~each of~~ said
4 listener tables listed in said broadcasting list data table.

1 57. (Currently Amended) The method of claim 56, further comprising the step of
2 removing said first unique name from said broadcasting list data table when said first
3 alarm manager is not operating correctly[[,]] after said performing of said sensing and
4 before storing of said alarm information in ~~each of~~ said listener tables listed in said
5 broadcasting list data table.

1 58. (Currently Amended) The method of claim 57, said first data table being
2 used for storing said alarm information when said alarm event is not cleared, said second
3 data table being used for storing said alarm information when said alarm event is cleared.

1 59. (Currently Amended) The method of claim 41, said alarm information
2 including at least one ~~selected from among~~ of an alarm event position, an alarm event
3 type, an alarm event level, an alarm event cause, additional alarm event information, and
4 an alarm event time.

1 60. (Currently Amended) The method of claim 41, further comprising the step of
2 assigning an unused alarm identifier to said alarm information when storing said alarm
3 information in said first data table.

1 61. (Currently Amended) The method of claim 41, further comprising the step of
2 sensing whether said plurality of alarm managers are operating correctly[[,]] after said
3 alarm event is detected and before said storing of said alarm information in ~~each of~~ said
4 listener tables listed in said broadcasting list data table.

1 62. (Currently Amended) The method of claim 41, further comprising the step of
2 removing said first unique name from said broadcasting list data table when said first
3 alarm manager is not operating correctly[[,]] after said performing of said sensing and
4 before storing of said alarm information in ~~each of~~ said listener tables listed in said
5 broadcasting list data table.

1 63. (Currently Amended) The method of claim 41, said first data table being
2 used for storing said alarm information when said alarm event is not cleared, said second
3 data table being used for storing said alarm information when said alarm event is cleared.

1 64. (Currently Amended) An alarm management method for a network
2 management system, said method comprising the steps of:

3 making creating an uncleared alarm table for storing alarm information that is
4 generated from a network and that is not cleared, and ~~making~~ creating a cleared alarm
5 table for storing alarm information that is cleared;

6 storing first alarm information in the uncleared alarm table when the first alarm
7 information is generated from the network, said first alarm information corresponding to
8 an alarm event; [[and]]

9 when the alarm event ends, removing said first alarm information from the
10 uncleared alarm table and storing the first alarm information in the cleared alarm table;

11 writing said first alarm information from said uncleared alarm table to a plurality
12 of listener tables;

13 reading said first alarm information from said listener tables using a plurality of
14 alarm managers; and

15 displaying said first alarm information read from said listener tables using said
16 plurality of alarm managers.

Claim 65. (Canceled)

1 66. (Currently Amended) An alarm management method for managing an alarm
2 in a network, said method comprising the steps of:

3 creating a plurality of listener data tables for storing information, each ~~[[one]]~~ of
4 said listener data tables corresponding to ~~[[one]]~~ a respective alarm manager selected
5 from among a plurality of alarm managers, each one of said listener data tables having a
6 unique name;

7 detecting whether said alarm managers are operating normally;

8 registering₁ in a broadcasting list data table₁ said unique names identifying said
9 listener data tables corresponding to said alarm managers that are detected to be operating
10 normally;

11 when an alarm event is generated in said network, ~~storing~~ writing first alarm
12 information ~~[[in]]~~ from an uncleared alarm table into said listener data tables
13 corresponding to said unique names registered in said broadcasting list data table; and

14 reading and displaying said first alarm information from said listener data tables
15 by means of said ~~corresponding~~ alarm managers that are detected to be operating
16 normally.

1 67. (Currently Amended) The method of claim 66, further comprising the steps
2 of:

3 periodically detecting whether said alarm managers are operating normally; and

4 removing₁ from said broadcasting list data table₁ said names of listener data tables
5 corresponding to said alarm managers that are detected to be not operating normally.